

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of forming a crystalline film, comprising:
forming a thin film having a surface on a glass substrate; and
crystallizing at least a surface layer of the thin film by applying energy through a window that exhibits transparency to the energy to the surface of the thin film, wherein a distance between the window and the thin film is more than about 20 mm, and at least the surface layer of the thin film is melted by the applied energy and crystallized by cooling solidification, the thin film being melted under a ~~hydrogen-containing mixed gaseous~~ atmosphere having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make the distance sufficient for the reduced scatter, wherein unpaired bonding electrons on the surface of the thin film during the cooling solidification are terminated by hydrogen atoms in ~~the hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas.
2. (Previously Presented) The method of forming a crystalline film according Claim 1, wherein the thin film is a semiconductor thin film.
3. (Canceled)
4. (Previously Presented) The method of forming a crystalline film according to Claim 1, wherein the step of crystallizing is carried out under atmospheric pressure.
5. (Currently Amended) The method of forming a crystalline film according to Claim 1, wherein at least the surface layer of the thin film is melted and crystallized in a ~~hydrogen-containing mixed gaseous~~ atmosphere that contains an inert gas and hydrogen molecules.

6. (Currently Amended) The method of forming a crystalline film according to Claim 4, wherein the ~~hydrogen-containing mixed gaseous~~ atmosphere contains an inert gas and a hydrogen halide.

7. (Previously Presented) The method of forming a crystalline film according to Claim 6, wherein the inert gas is a rare gas.

8. (Previously Presented) The method of forming a crystalline film according to Claim 6, wherein the rare gas is argon.

9. (Previously Presented) The method of forming a crystalline film according to Claim 8, wherein in the step of crystallizing, at least the surface of the thin film is melted by supplying high energy to the thin film.

10. (Previously Presented) The method of forming a crystalline film according to Claim 9, wherein the form of the high energy is light.

11. (Previously Presented) The method of forming a crystalline film according to Claim 9, wherein the form of the high energy is a laser beam.

12. (Currently Amended) The method of forming a crystalline film, comprising:
forming a semiconductor thin film having a surface on a glass substrate; and
crystallizing at least a surface layer of the semiconductor thin film by applying energy through a window that exhibits transparency to the energy to the surface of the semiconductor thin film, wherein a distance between the window and the thin film is more than about 20 mm, and at least the surface layer of the semiconductor thin film is melted by the applied energy and crystallized by cooling solidification, the semiconductor thin film being melted under ~~an a~~ mixed gaseous atmosphere having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make the distance sufficient for the reduced scatter, the ~~atmosphere comprising mixed gaseous atmosphere~~ containing an inert gas, a gas containing the component element of the semiconductor thin

film and hydrogen, wherein unpaired bonding electrons on the surface of the semiconductor thin film during the cooling solidification are terminated by hydrogen atoms in the mixed gaseous atmosphere.

13. (Previously Presented) The method of forming a crystalline film according to Claim 12, wherein the step of crystallizing is carried out under atmospheric pressure.

14. (Previously Presented) The method of forming a crystalline film according to Claim 12, wherein the gas containing the component element of the semiconductor thin film is a hydride of the component element.

15. (Previously Presented) The method of forming a crystalline film according to Claim 12, wherein the semiconductor thin film is a silicon thin film, and the gas containing the component element of the semiconductor thin film is silane.

16. (Previously Presented) The method of forming a crystalline film according to Claim 12, wherein in the step of crystallizing, at least the surface of the semiconductor thin film is melted by supplying high energy to the semiconductor thin film.

17. (Previously Presented) The method of forming a crystalline film according to Claim 16, wherein the form of the high energy is light.

18. (Previously Presented) The method of forming a crystalline film according to Claim 16, wherein the form of the high energy is a laser beam.

19. (Canceled)

20. (Currently Amended) A method of forming a crystalline film, comprising:
forming a thin film on a glass substrate;

setting the thin film in a supply chamber of a high energy supply apparatus including a generation source for generating the high energy and the supply chamber for supplying the high energy to the thin film, the supply chamber including an introduction

window that exhibits transparency to the energy and introduces the high energy into the supply chamber;

crystallizing at least a surface layer of the thin film by supplying high energy through the introduction window to the thin film, the thin film being melted under a ~~hydrogen-containing mixed gaseous atmosphere of inert gas~~ having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make a distance between the introduction window and the thin film sufficient for the reduced scatter, at least the surface layer of the thin film being melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification being terminated by hydrogen atoms in ~~the hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas; and

positioning the introduction window relative to the thin film at a location resistant to adherence of components of the thin film when the high energy is supplied to the thin film such that the distance between the introduction window and the thin film is more than about 20 mm.

21. (Previously Presented) The method of forming a crystalline film according to Claim 20, wherein the thin film is a semiconductor thin film.

22. (Previously Presented) The method of forming a crystalline film according to Claim 20, wherein the thin film is a metallic thin film.

23. (Previously Presented) The method of forming a crystalline film according to Claim 20, wherein the form of the high energy is light.

24. (Canceled)

25. (Currently Amended) A method of forming a crystalline film, comprising:
forming a thin film on a glass substrate;

setting the thin film in a supply chamber of a high energy supply apparatus including a generation source for generating the high energy and the supply chamber for supplying the high energy to the thin film, the supply chamber including a wall and an introduction window provided in a portion of the wall, the introduction window introducing the high energy into the chamber;

crystallizing at least a surface layer of the thin film by supplying high energy through the introduction window that exhibits transparency to the energy to the thin film, the thin film being melted under a ~~hydrogen-containing mixed gaseous atmosphere of inert gas~~ having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make a distance between the introduction window and the thin film sufficient for the reduced scatter, at least the surface layer of the thin film being melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification being terminated by hydrogen atoms in ~~the hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas; and

positioning the introduction window relative to the thin film so that the distance between the introduction window and the thin film is larger than about 20 mm.

26. (Previously Presented) The method of forming a crystalline film according to Claim 25, wherein the thin film is a semiconductor thin film.

27. (Previously Presented) The method of forming a crystalline film according to Claim 25, wherein the thin film is a metallic thin film.

28. (Previously Presented) The method of forming a crystalline film according to Claim 25, wherein the form of the high energy is light.

29. (Canceled)

30. (Currently Amended) A method of forming a crystalline film, comprising:

forming a thin film on a substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy to the thin film, the thin film being melted under a ~~hydrogen-containing mixed gaseous atmosphere of inert gas~~ having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make a distance between an introduction window and the thin film sufficient for the reduced scatter, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in ~~the hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas, wherein:

crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber includes the introduction window that exhibits transparency to the energy and introduces the high energy into the supply chamber, wherein the distance between the introduction window and the thin film is more than about 20 mm; and

the high energy is supplied to the thin film under a pressure in the vicinity of the introduction window that is higher than a pressure in the vicinity of the thin film in the supply chamber.

31. (Previously Presented) The method of forming a crystalline film according to Claim 30, wherein the thin film is a semiconductor thin film.

32. (Previously Presented) The method of forming a crystalline film according to Claim 30, wherein the thin film is a metallic thin film.

33. (Previously Presented) The method of forming a crystalline film according to Claim 30, wherein the form of the high energy is light.

34. (Canceled)

35. (Currently Amended) A method of forming a crystalline film, comprising:
forming a thin film on a glass substrate; and
crystallizing at least a surface layer of the thin film, the thin film being melted by supplying high energy to the thin film under a ~~hydrogen-containing mixed gaseous atmosphere of inert gas~~ having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make a distance between an introduction window and the thin film sufficient for the reduced scatter, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in the ~~hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas, wherein:

crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber includes the introduction window that exhibits transparency to the energy and introduces the high energy into the supply chamber, wherein the distance between the introduction window and the thin film is more than about 20 mm, and an exhaust port for exhausting air in the supply chamber; and

the high energy is supplied to the thin film under (i) a pressure in the vicinity of the introduction window that is higher than a pressure in the vicinity of the thin film, and

(ii) a pressure in the vicinity of the thin film that is higher than a pressure in a vicinity of the exhaust port in the supply chamber.

36. (Previously Presented) The method of forming a crystalline film according to Claim 35, wherein the thin film is a semiconductor thin film.

37. (Previously Presented) The method of forming a crystalline film according to Claim 35, wherein the thin film is a metallic thin film.

38. (Previously Presented) The method of forming a crystalline film according to Claim 35, wherein the form of the high energy is light.

39. (Canceled)

40. (Currently Amended) A method of forming a crystalline film, comprising:
forming a thin film on a glass substrate;
crystallizing at least a surface layer of the thin film by supplying high energy to the thin film, the thin film being melted under a ~~hydrogen-containing mixed gaseous atmosphere of inert gas~~ having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make a distance between an introduction window and the thin film sufficient for the reduced scatter, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in ~~the hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas, wherein:
crystallizing is carried out in a high energy supply apparatus which includes a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;
the thin film is set in the supply chamber;

the supply chamber includes the introduction window that exhibits transparency to the energy and introduces the high energy into the supply chamber, wherein the distance between the introduction window and the thin film is more than about 20 mm;

the thin film is irradiated with the high energy introduced into the supply chamber through the introduction window along an irradiation path in the supply chamber;

a part of the high energy enters the thin film, and another part of the high energy is reflected from the thin film along a reflection path in the supply chamber;

a gas flow is present in the supply chamber; and

the high energy is supplied to the thin film with (i) the gas flow from the introduction window to the thin film in approximately the same direction as the irradiation path, and (ii) the gas flow from the thin film in approximately the same direction as the reflection path.

41. (Previously Presented) The method of forming a crystalline film according to Claim 40, wherein the thin film is a semiconductor thin film.

42. (Previously Presented) The method of forming a crystalline film according to Claim 40, wherein the thin film is a metallic thin film.

43. (Previously Presented) The method of forming a crystalline film according to Claim 40, wherein the form of the high energy is light.

44. (Canceled)

45. (Canceled)

46. (Currently Amended) A method of forming a crystalline film, comprising:

forming a thin film on a glass substrate; and

crystallizing at least a surface layer of the thin film by supplying high energy through an introduction window that exhibits transparency to the energy to the thin film, the thin film being melted under a ~~hydrogen-containing mixed gaseous~~ atmosphere of ~~inert gas~~

having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make a distance between the introduction window and the thin film sufficient for the reduced scatter, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in ~~the hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas, wherein:

crystallization is carried out in a high energy supply apparatus that includes a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber has the introduction window provided in a portion of the wall of the supply chamber, for introducing the high energy into the supply chamber, wherein the distance between the introduction window and the thin film is more than about 20 mm;

the thin film is irradiated with the high energy introduced into the supply chamber through the introduction window, the high energy passes through the introduction window along an irradiation path and travels along the irradiation path in the supply chamber; and

the high energy is supplied to the thin film with the normal direction of the thin film shifted by an angle from the direction of the irradiation path.

47. (Previously Presented) The method of forming a crystalline film according to Claim 46, wherein the thin film is a semiconductor thin film.

48. (Previously Presented) The method of forming a crystalline film according to Claim 46, wherein the thin film is a metallic thin film.

49. (Previously Presented) A method of forming a crystalline film according to Claim 48, wherein the form of the high energy is light.

50-55. (Canceled)

56. (Currently Amended) A method of forming a crystalline film, comprising:
forming a thin film on a glass substrate; and
crystallizing at least a surface layer of the thin film by supplying high energy through an introduction window that exhibits transparency to the energy to the thin film, the thin film being melted under a ~~hydrogen-containing mixed gaseous atmosphere of inert gas~~ having a total pressure of at least atmospheric pressure to reduce the scatter of melted thin film and to make a distance between the introduction window and the thin film sufficient for the reduced scatter, at least the surface layer of the thin film is melted by the high energy and crystallized by cooling solidification, and unpaired bonding electrons on a surface of the thin film during the cooling solidification are terminated by hydrogen atoms in ~~the hydrogen-containing atmosphere of inert gas~~ the mixed gaseous atmosphere, the mixed gaseous atmosphere containing a hydrogen-containing gas and an inert gas, wherein:

crystallization is carried out in a high energy supply apparatus including a generation source for generating the high energy and a supply chamber for supplying the high energy to the thin film;

the thin film is set in the supply chamber;

the supply chamber has the introduction window provided in a portion of the wall of the supply chamber, for introducing the high energy into the supply chamber, wherein the distance between the introduction window and the thin film is more than about 20 mm;

when a first position of the thin film is irradiated with the high energy introduced into the supply chamber, part of the high energy enters the thin film; and another

part of the high energy is reflected by the thin film to form reflected energy that irradiates a second position of the thin film through a course change of the reflected energy.

57. (Previously Presented) The method of forming a crystalline film according to Claim 56, wherein during the time the first position is irradiated with the high energy, irradiation of the second position with the reflected energy corresponding to the high energy is started.

58. (Previously Presented) The method of forming a crystalline film according to Claim 57, wherein the first position is approximately the same as the second position.

59. (Previously Presented) The method of forming a crystalline film according to Claim 56, wherein the thin film is a semiconductor thin film.

60. (Previously Presented) The method of forming a crystalline film according to Claim 56, wherein the thin film is a metallic thin film.

61. (Previously Presented) The method of forming a crystalline film according to Claim 56, wherein the form of the high energy is light.

62. (Previously Presented) The method of manufacturing a thin film electronic device comprising a crystalline film, wherein the crystalline film is formed by a method according to Claim 1.

63. (Previously Presented) The method of forming a crystalline film according to Claim 1, wherein the thin film is a metallic thin film.